

Appl. No. 10/710,512
Amendment dated 9/1/2004

AMENDMENTS TO CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1-33. (canceled)

34. (new) A system for calculating distances to objects within three-dimensional space in an environment comprising horizontal and vertical lines using an angled axis machine vision system comprising:

a first camera;

a second camera mounted coplanar to said first camera wherein said first camera and said second camera comprise collinear horizontal center lines

a camera mount coupled with said first camera and said second camera wherein said camera

mount is rotated in a first axial angle between 0 and 90 degrees about a roll axis; and,

a computer coupled with said first camera and said second camera and configured to calculate a distance using a first picture obtained from said first camera and a second picture obtained from said second camera to a feature found along an epipolar line parallel to said collinear horizontal center lines.

35. (new) The system of claim 34 wherein said first axial angle is substantially 45 degrees.

36. (new) The system of claim 34 wherein said first axial angle is substantially 37 degrees.

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37. (new) The system of claim 34 wherein said first axial angle is substantially 29 degrees.

38. (new) The system of claim 34 wherein said camera mount is rotated in a second axial angle between 0 and 90 degrees about a pitch axis orthogonal to said roll axis.

39. (new) A method for calculating distances to objects within three-dimensional space in an environment comprising horizontal and vertical lines using an angled axis machine vision system comprising:

attaching a first camera and a second camera to a camera mount;

rotating said camera mount in a first axial angle between 0 and 90 degrees about a first axis;

obtaining a first picture from said first camera;

obtaining a second picture from said second camera; and,

calculating a distance to an object.

40. (new) The method of claim 39 wherein said first axial angle is substantially 45 degrees.

41. (new) The method of claim 39 wherein said first axial angle is substantially 37 degrees.

42. (new) The method of claim 39 wherein said first axial angle is substantially 29 degrees.

43. (new) The method of claim 39 further comprising:

rotating said camera mount in a second axial angle between 0 and 90 degrees about a pitch axis orthogonal to said roll axis.

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44. (new) A system for calculating distances to objects within three-dimensional space in an environment comprising horizontal and vertical lines using an angled axis machine vision system comprising:

means for attaching a first camera and a second camera to a camera mount;

means for rotating said camera mount in a first axial angle between 0 and 90 degrees about a first axis;

means for obtaining a first picture from said first camera;

means for obtaining a second picture from said second camera; and,

means for calculating a distance to an object.

45. (new) The system of claim 44 wherein said first axial angle is substantially 45 degrees.

46. (new) The system of claim 44 wherein said first axial angle is substantially 37 degrees.

47. (new) The system of claim 44 wherein said first axial angle is substantially 29 degrees.

48. (new) The system of claim 44 further comprising:

means for rotating said camera mount in a second axial angle between 0 and 90 degrees about a pitch axis orthogonal to said roll axis.